

Listing of Claims

The below listing of claims will replace all prior versions of claims in the application.

1. (Cancelled)
2. (Previously presented) The method of claim 35, wherein the etchant comprises a mixture of nitric acid, hydrofluoric acid, and acetic acid.
3. (Previously presented) The method of claim 35, wherein the etchant flows through the channel across the exposed surface at a rate of at least 0.7 meters/second.
4. (Previously presented) The method of claim 35, wherein the flow of the etchant through the channel across the exposed surface is turbulent.
5. (Previously presented) The method of claim 35, wherein the flowing of the etchant is performed in a sealed chamber formed by the support member and the adapter member.
6. (Previously presented) The method of claim 35, further comprising flowing an acidic solution through the channel across the exposed surface from the first edge of the exposed surface to the second edge of the exposed surface to at least partially remove oxide on the exposed surface.
7. (Previously presented) The method of claim 35, further comprising flowing an acidic solution through the channel across the exposed surface from the first edge of the exposed surface to the second edge of the exposed surface to at least partially remove oxide on the exposed surface, wherein the acidic solution comprises hydrofluoric acid, the flowing of the acidic solution preceding the flowing of the etchant.
8. (Previously presented) The method of claim 35, further comprising flowing an acidic solution through the channel across the exposed surface from the first edge of the

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exposed surface to the second edge of the exposed surface, wherein the flowing of the acidic solution is subsequent to the flowing of the etchant.

9. (Previously presented) The method of claim 35, further comprising flowing an acidic solution through the channel across the exposed surface from the first edge of the exposed surface to the second edge of the exposed surface, wherein the flowing of the acidic solution is subsequent to the flowing of the etchant, wherein the acidic solution comprises hydrofluoric acid and nitric acid.

10. (Previously presented) The method of claim 35, wherein the flowing of the etchant further comprises flowing a layer of etchant through the channel across the exposed surface from the first edge of the exposed surface to the second edge of exposed surface to etch the semiconductor die, the layer having a thickness less than about 0.5 millimeters.

11. (Previously presented) The method of claim 2, further comprising mixing the nitric acid, hydrofluoric acid, and acetic acid in a spherical mixing chamber before flowing the etchant through the channel across the exposed surface of the semiconductor die.

12. (Previously presented) The method of claim 35, wherein the semiconductor die further comprises an unexposed surface at least partially disposed within an encapsulant, the exposed surface being exposed through a cavity formed in the encapsulant.

13. (Cancelled)

14. (Previously presented) The method of claim 36, wherein the etchant comprises a mixture of nitric acid, hydrofluoric acid, and acetic acid.

15. (Previously presented) The method of claim 36, wherein the etchant flows through the channel across the second surface of the semiconductor die at a rate of at least 0.7 meters/second.

16. (Previously presented) The method of claim 36, wherein the flow of the etchant through the channel across the second surface of the semiconductor die is turbulent.

17. (Previously presented) The method of claim 36, wherein the flowing of the etchant is performed in a sealed chamber formed by the support member and the adapter member.

18. (Previously presented) The method of claim 36, wherein the first acidic solution comprises hydrofluoric acid.

19. (Previously presented) The method of claim 36, wherein the second acidic solution comprises hydrofluoric acid and nitric acid.

20. (Previously presented) The method of claim 36, wherein the flowing of the etchant further comprises flowing a layer of etchant through the channel across the second surface of the semiconductor die from the first edge of the second surface to the second edge of the second surface to etch the semiconductor die.

21. (Previously presented) The method of claim 36, wherein the first surface of the semiconductor die comprises an unexposed surface disposed within an encapsulant, and the second surface of the semiconductor die comprises an exposed surface being exposed through a cavity formed in the encapsulant.

22-28. (Canceled)

29. (Previously presented) A method for thinning a semiconductor die at least partially disposed in a semiconductor package, the method comprising:

providing a semiconductor die having opposing active and inactive surfaces, the semiconductor die being disposed in a semiconductor package with the inactive surface being at least partially exposed through a cavity formed in the semiconductor package;

inserting a first surface of a first member into the cavity to form a channel between the first surface of the first member and the inactive surface of the semiconductor die; and

flowing an etchant through the channel to etch the inactive surface of the semiconductor die.

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30. (Previously presented) The method of claim 29, wherein the flowing of the etchant is performed in a sealed chamber.

31. (Original) The method of claim 29, wherein the etchant flows across the inactive surface of the semiconductor die at a rate of at least 0.7 meters/second.

32. (Original) The method of claim 29, wherein the etchant flows across the inactive surface of the semiconductor die in a turbulent manner.

33. (Previously presented) The method of claim 29, further comprising flowing an oxide removing liquid across the inactive surface of the semiconductor die to remove at least a portion of any oxides disposed on the inactive surface, wherein the flowing of the oxide removing liquid precedes the flowing of the etchant.

34. (Canceled)

35. (Previously presented) A method for etching a semiconductor die having an exposed surface disposed between first and second edges, the method comprising:
providing an etching assembly including a support member and an adapter member;
positioning the semiconductor die on the support member, the exposed surface of the semiconductor die facing away from the support member;
positioning the adapter member adjacent the exposed surface of the semiconductor die to form a channel between the exposed surface of the semiconductor die and the adapter member; and
flowing an etchant through the channel across the exposed surface from the first edge to the second edge to etch the semiconductor die.

36. (Previously presented) A method for etching a semiconductor die having opposing first and second surfaces, the method comprising:
providing an etching assembly including a support member and an adapter member;
positioning the semiconductor die on the support member, the second surface of the semiconductor die facing away from the support member;

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positioning the adapter member adjacent the second surface of the semiconductor die to form a channel between the second surface of the semiconductor die and the adapter member;

flowing a first acidic solution through the channel across the second surface of the semiconductor die to at least partially remove oxide on the second surface;

flowing an etchant through the channel across the second surface from a first edge of the second surface to a second edge of the second surface to etch the semiconductor die; and

flowing a second acidic solution through the channel across the second surface of the semiconductor die to at least partially polish the second surface of the semiconductor die.

37. (Canceled)